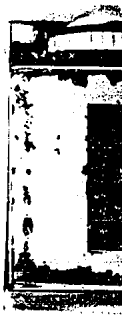
STAT

Sanitized Copy Approved for Release 2011/09/14 : CIA-RDP80-00809A000700190156-7



AN ACCOUNT OF USSR EXPERIENCE IN THE TRANSFUSION OF BOVINE THERAPEUTIC SERUM TO HUMAN PATIENTS

Meditsinskiy Rabotnik, Vol XVII, No 2 (1226)
Moscow, 5 Jan 1954

Prof F. Uglov; L. Zvyagin,
Cand Med Sci, Leningrad

Soviet scientists have demonstrated in clinical work that it is possible to use the blood of animals for transfusion to human beings. Of particular practical interest is use in this manner of the serum of cattle, which serum has been treated by a special method developed under the direction of N. G. Belen'kiy.

Numerous experimental investigations carried out on animals demonstrated the therapeutic properties and advantages of this serum as compared with other blood substitutes. During the past 5 years, we have administered 450 transfusions of this serum to 16- to 70-year-old patients suffering from various diseases. The quantity of serum administered in individual transfusions varied from 100 to 1,000 ml. The individual transfusions were administered at intervals varying from several days to a number of weeks. For instance, one patient, who had been subjected to an extensive resection of the intestine because of an intestinal obstruction, received 17 transfusions of the serum during 23 days. The total volume of the serum administered to this patient amounted to 10,650 ml. There were no harmful effects in this case.

We have used the serum extensively for parenteral feeding of patients after operations on the gastrointestinal tract and also after operations in cases of peritonitis. A sharp improvement in the general condition of the patient after surgery of the stomach or of the intestine, and also in cases of stenosis of the esophagus or of the pylorus, is explained by the high content of animal protein in the serum.

The poorer the general condition of the patient and the more highly expressed debility and intoxication are (for instance, in peritonitis), the better is the clinical effect achieved by transfusion of the serum. To a considerable number of patients suffering from suppurative processes of the lungs and of the pleura, the serum was administered not only for supplementing the quantity of proteins but also for raising the general tonus of the organism. In combination with reinforced feeding, the application of antibiotics, postural drainage, and surgical treatment, the transfusion of the serum noticeably improved the general condition of the patients.

All clinical observations indicate that the serum has an undoubted stimulating effect when applied in combination with therapy directed toward removing the cause of the pathogenic condition. Transfusions of the serum in sepsis, osteomyelitis, and lingering peritonitis, as well as in other suppurative diseases, produced a distinct clinical effect, which was confirmed by laboratory investigations.

In addition to hematological and some biochemical investigations, we have investigated the antitoxic function of the liver by introducing into the body sodium benzoate and then determining the content of hippuric acid in the urine. We assumed that in cases of serious depression of the function of the liver, this disturbance may be caused by the foreign nature of the protein introduced with the serum. A selected group of patients, who suffered from slowly progressing suppurative conditions (abscesses of the lungs, bronchial fistulas, hematogenic osteomyelitis), was treated with the serum. In more than 50% of the patients there was improvement of the indices of the antitoxic function of the liver after transfusion of the serum. In cases where the reactions were observed at the time of transfusion and after it, an abrupt rise in the antitoxic function of the liver was always found.

STAT

Although we were very careful in evaluating the reaction to the synthesis of hippuric acid, which reaction was considered without taking other results into account, we still found a definite correlation between improvement of the patient's condition and an increase in the antitoxic indices. The stimulating effect of the serum was also confirmed by other observations made by us during the last few years. When we applied the serum for the treatment of mastitis that occurred subsequent to birth and that took a slow course, we observed in a number of cases an increase in lactation. In the case of women who suffered from partial or complete absence of milk, transfusion of serum often increased the amount of lactation.

Preliminary data obtained by us indicate that the serum has the property of increasing virility. Analogous results on animals were obtained by N. A. Mamiyeva in 1952.

The reactions to the administrations of serum arise as a rule in the initial stage after the transfusion and occur much less frequently in the later stages. Occasionally there are weak pains along the course of the vein. These pains disappear promptly when the injection rate of the serum is reduced. The pains are not followed by a convulsion and one may inject the serum into the vein repeatedly.

In cases when there was a general reaction to the serum, the patients complained of difficulty in breathing and of pains in the chest and around the waist. Lowering of the blood pressure was observed in such cases. Occasionally there was a clinical syndrome of serum disease.

When a general reaction occurs, it is violent as a rule, particularly in debilitated patients. However, after the transfusion has been stopped, all symptoms of anaphylaxis disappear within several minutes. No therapeutic measures are necessary.

As the technological process for the preparation of the serum is improved, the number of reactions drops. While we obtained 10% of general reactions in the first 209 transfusions, there were only 3% of general reactions subsequent to the 241 transfusions carried out after that.

The time between transfusions has no noticeable effect on the frequency of reactions. There was also no correlation between the occurrence of reactions and the time intervals when transfusions of serum and whole human blood were carried out alternately.

To prevent reactions, one should administer, either subcutaneously or intravenously, one milliliter of morphine 10-15 minutes prior to the transfusion and carry out the biological test as it is performed prior to an ordinary blood transfusion.

Notwithstanding the great advantages of the species-nonspecific cattle serum, it has not yet been brought to the attention of the wider medical community, especially practical physicians. One experiences great difficulties if one wishes to obtain this valuable preparation, which marks a notable advance in the practical solution of the problem of the transfusion of heterogenous blood.

- E N D -

STAT